



# Volunteer Lake Assessment Program Individual Lake Reports

## BAXTER LAKE, FARMINGTON, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	2,439	Max. Depth (m):	4.6	Flushing Rate (yr <sup>-1</sup> )	1.9
Surface Area (Ac.):	295	Mean Depth (m):	2.1	P Retention Coef:	0.7
Shore Length (m):	7,200	Volume (m <sup>3</sup> ):	2,452,500	Elevation (ft):	405

### TROPHIC CLASSIFICATION

Year	Trophic class
1979	MESOTROPHIC
1995	MESOTROPHIC

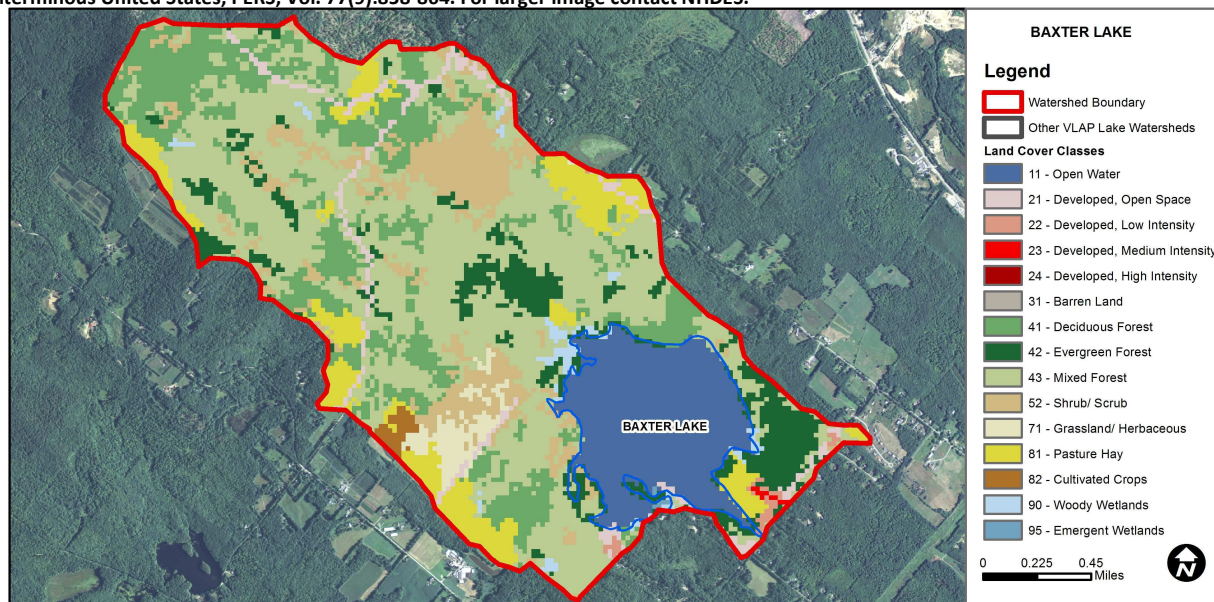
### KNOWN EXOTIC SPECIES


The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	<5 samples and median is > threshold. More data needed.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

### WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	12.1	Barren Land	0	Grassland/Herbaceous	1.76
Developed-Open Space	2.97	Deciduous Forest	16.84	Pasture Hay	8.1
Developed-Low Intensity	0.46	Evergreen Forest	8.75	Cultivated Crops	0.53
Developed-Medium Intensity	0.1	Mixed Forest	37.43	Woody Wetlands	1.17
Developed-High Intensity	0	Shrub-Scrub	9.71	Emergent Wetlands	0.07



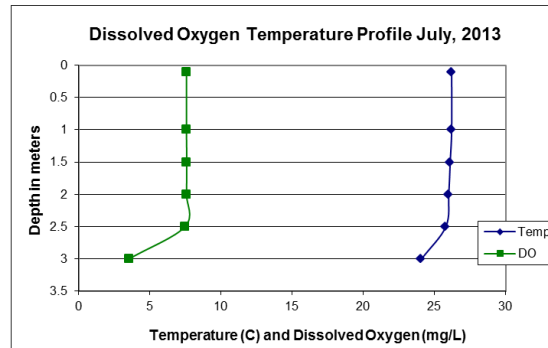
# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

## BAXTER LAKE, FARMINGTON, NH

### 2013 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- 🔥 **CHLOROPHYLL-A:** Chlorophyll levels increased slightly in 2013 and were slightly elevated in July, however average levels were approximately equal to the state median. Historical trend analysis indicates stable chlorophyll with low variability between years.
- 🔥 **CONDUCTIVITY/CHLORIDE:** Deep spot, Outlet, Cruze Brook, and Cruze Cove conductivity and chloride were slightly greater than the state medians. Dinneen Brook conductivity and chloride were elevated. Historical trend analysis indicates relatively stable epilimnetic (upper water layer) conductivity with moderate variability between years.
- 🔥 **E. COLI:** Beach E. coli levels were less than the state standard for public beaches on each sampling event.
- 🔥 **TOTAL PHOSPHORUS:** Epilimnetic and hypolimnetic (lower water layer) phosphorus levels were approximately equal to the state median and decreased slightly from 2012 levels. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years. Cruze Brook, Cruze Cove and Dinneen Brook phosphorus levels were relatively low. Outlet phosphorus levels were slightly elevated in June and August.
- 🔥 **TRANSPARENCY:** Transparency was good throughout the summer and the Secchi disk was visible on the lake bottom in July. Historical trend analysis indicates stable transparency with low variability between years.
- 🔥 **TURBIDITY:** Cruze Brook turbidity was slightly elevated in June, and Cruze Cove in July potentially due to low flow conditions. Outlet turbidity was slightly elevated in June and August, and the August turbidity was due to cyanobacteria (algae) noted in the sample.
- 🔥 **pH:** Deep spot pH levels were less than desirable range 6.5 – 8.0 units throughout the summer. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability between years.
- 🔥 **DISSOLVED OXYGEN:** Dissolved oxygen levels decreased to lower levels in the hypolimnion but were high throughout the rest of the water column.
- 🔥 **RECOMMENDED ACTIONS:** Chloride levels are slightly elevated in Dinneen Brook and likely a result of road salting activities. Encourage local road agents to obtain a Voluntary NH Salt Applicator license through the UNH Technology Transfer Center's (T2) Green SnowProw Certification Program in hopes of better managing the use of road salt. Cyanobacteria, blue-green algae, were noted in the Epilimnion and Outlet samples in August. Cyanobacteria are potentially toxic when present in elevated amounts. Notify DES if you observe cyanobacteria scums in the summer. Cyanobacteria and other algae utilize the nutrient phosphorus to grow. Identify potential phosphorus sources around the lake and watershed and encourage lake and watershed residents to implement best management practices to reduce stormwater runoff from their properties utilizing DES' "Homeowner's Guide to Stormwater Management". Keep up the great work!



**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

**Conductivity:** 40.0 uS/cm

**Chloride:** 4 mg/L

**Total Phosphorus:** 12 ug/L

**Transparency:** 3.2 m

**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)

**E. coli:** > 88 cts/100 mL – public beach

**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** 6.5-8.0 (unless naturally occurring)

Station Name	Table 1. 2013 Average Water Quality Data for BAXTER LAKE								
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m	Turb. ntu	pH
							NVS	VS	
Beach 1					11				
Beach 2					21				
Beach 3					46				
Cruze Brook			6	79.4		9		1.69	6.46
Cruze Cove			14	79.3		9		1.97	6.43
Dinneen Brook			27	109.6		9		0.42	6.50
Epilimnion	3.70	4.95	14	54.5		13	2.87	3.18	0.94
Hypolimnion				55.3		12		0.92	6.42
Outlet				54.9		16		1.42	6.54

#### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	Stable	Trend not significant; data moderately variable.	Chlorophyll-a	Stable	Trend not significant; data show low variability.
Conductivity	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

